

INDICATORS OF BONE TISSUE METABOLISM IN PATIENTS WITH OSTEOARTHRITIS AND ITS COMBINATION WITH TYPE 2 DIABETES MELLITUS

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Objective. The aim of the study was to investigate the level of osteocalcin, calcitonin, alkaline phosphatase, and the level of Ca, P, Mg and their interconnection with carbohydrate metabolism in patients with osteoarthritis (OA) and with its combination with type 2 diabetes mellitus (T2DM).

Material and Methods: The study was performed on 70 patients (22 males, mean aged 54.68 ± 0.84) in Regional Hospital of Kharkov, control group (n=20). All patients were divided into 3 groups: group 1 (n=21) - with OA, group 2 (n=20) - with T2DM, group 3 (n=29) - with combined course of OA and T2DM. The survey plan included indices of carbohydrate exchange (insulin (IRI), glucose, HbA1C, HOMA-IR). The level of HbA1C was $<7.5\%$ in all patients. The level of alkaline phosphatase (ALP) was determined by colorimetric method, levels of Ca, P, Mg were determined by biochemical method. The levels of osteocalcin (Oc), calcitonin (Ct) were determined by ELISA. The level of C-reactive protein (CRP) was determined by using of a latex test. The X-ray examination of knees was performed for all patients with OA.

Results: A statistically significant relations between the degree of diagnosis complexity and radiological changes by Kellgren were found (M-L $\chi^2=14.69$ $p=0.0032 < 0.05$). We found significant negative correlation between level of Oc and glucose ($r=-0.56$, $p=0.010464$), HbA1C ($r=-0.51$, $p=0.022.004$) and correlation between the level of P and HOMA ($r=0.64$, $p=0.002409$), glucose ($r=0.54$; $p=0.013150$) and IRI ($r=0.46$; $p=0.040257$) in the 2nd group. The level of Oc negatively correlated with glucose ($r=-0.57$; $p=0.001492$) and HOMA ($r=-0.57$; $p=0.001557$) among the patients in the 3rd group and slightly weaker negative correlation between level of Mg and HbA1C ($r=-0.376405$, $p=0.048356$) as well. Also the negative correlation between CRP and Oc was determined in 1st group ($\tau=-0.41$, $p=0.010151 < 0.05$) and in the 3rd group as well ($\tau=-0.33$; $p=0.014710 < 0.05$).

Conclusion. The study demonstrates that changes of bone metabolism and the relationship between them and carbohydrate metabolism in patients with comorbidity of OA and T2DM may indicate the impact of disorders of carbohydrate metabolism on remodeling of bone that can leads to progression of osteoarticular changes in patients with OA.